Land Use and Environmental Service Agency
(Code Enforcement)

NC Mechanical Code

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307 - Question: What is the proper size of a condensate line connecting multiple condensate drains into a single header?

Answer: Residential (3 to 5 tons)

• Increase pipe size each time you add additional unit up to 1 ½ inch pipe size.

Commercial

• Increase pipe size each time you add additional unit up to 2 inch pipe size.

Example: 3 units are to be manifolded together. After the first 2 are combined, the pipe size will increase to 1 inch. After the third is tied in, the pipe size will increase to 1 1/4 inch.

307.2.3 - Question: Is a float switch or auxiliary pan required for an air handler sitting on a wood floor?

Answer: Yes, Section 307.2.3 requires an auxiliary system where damage to the building components could occur. This can be accomplished with any of the 4 options in 307.2.3.

307.2.3 Auxiliary and secondary drain systems. In addition to the requirements of Section 307.2.1, where damage to any building components could occur as a

result of overflow from the equipment primary condensate removal system, one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired appliance that produces condensate:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 11/2 inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet steel pans shall have a minimum thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage). Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).

2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.

3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.

4. A water-level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, upstream of the primary drain line trap, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

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502.14 - Question: Section 502.14 NCMC requires a source capture system where stationary motor vehicles are operated. What are the termination requirements for this system?

Answer: Section 501.2.1 provides the requirements for various types of exhaust. The exhaust from a source capture would not be considered flammable, nor would it be considered environmental air. Therefore source capture exhaust outlets would have to comply with 501.2.1 #2.

10 feet from property lines

3 feet from exterior walls and roofs

10 feet from operable openings into buildings

10 feet above adjoining grade

501.2.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.

2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.

3. For all environmental air exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious.

4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the design flood level.

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5. For specific systems see the following sections:

5.1. Clothes dryer exhaust, Section 504.4.

5.2. Kitchen hoods and other kitchen exhaust equipment, Sections 506.3.12, 506.4 and 506.5.

5.3. Dust stock and refuse conveying systems, Section 511.2.

5.4. Sub slab soil exhaust systems, Section 512.4

5.5. Smoke control systems, Section 513.10.3

5.6. Refrigerant discharge, Section1105.7

5.7. Machinery room discharge, Section 1105.6.1

504.7 - Question: What are the venting requirements for a Type 2 dryer?

Answer: Most of the venting requirements will be per the manufacture's installation instructions. However there a few requirements per Section 504.7 NCMC.

1. Exhaust fan motors installed in the exhaust system shall be outside of the air stream
2. When multiple dryers are manifolded together, the fan shall run continuously or be interlocked to operate when any individual unit is operating.
3. Ducts shall have a minimum clearance of 6 inches
4. Transition ducts connecting the appliance to the exhaust system shall not exceed 8 feet
5. Transition ducts shall be listed and labeled for the application
6. Transition ducts shall not be concealed within construction

504.7 Commercial clothes dryers. The installation of dryer exhaust ducts serving Type 2 clothes dryers shall comply with the appliance manufacturer's installation instructions. Exhaust fan motors installed in exhaust systems shall be located

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outside of the airstream. In multiple installations, the fan shall operate continuously or be interlocked to operate when any individual unit is operating. Ducts shall have a minimum clearance of 6 inches (152 mm) to combustible materials. Clothes dryer transition ducts used to connect the appliance to the exhaust duct system shall be limited to single lengths not to exceed 8 feet (2438 mm) in length and shall be listed and labeled for the application. Transition ducts shall not be concealed within construction.

505.2 - Question: It was my understanding that I could go up to 600 cfm on domestic kitchen hoods before I had to provide makeup air, but I was told I had to provide it because the house had a fireplace. Is this correct?

Answer: Yes, there was a code change that allows domestic exhaust hoods that do not exceed 600 cfm to be installed without providing makeup air. There is a stipulation, all the appliance in the house have to be direct-vent, power-vent, unvented or electric. The fireplace is not a direct vent.
See attached code reference and flow chart.

603.6.1 - Question: I was turned down for using aluminum flex for the make up air duct on my factory built fire place. The manufacture instructions just states to use flex. Why was I turned down?

Answer: Section 603.6.1 NCMC states flexible air ducts, both metallic and nonmetallic must be tested in accordance with UL181. It appears there are several manufacturers of this flexible aluminum duct, which has not been tested in accordance with UL181.

Policy - Question: Who looks at factory built fire places? The Building Inspector or the Mechanical Inspector?

Answer: Both will look at it. The Building Inspector will inspect the unit for clearances to combustibles and the Mechanical Inspector will inspect the vent, combustion air (if applicable) and the gas line (if applicable).

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Policy - Question: What is the minimum depth allowed for a return box with a filter grill?

Answer: There needs to be at least 12" depth measured from the back of the filter grill and the back of the box where the starting collar is connected. Depths less than the 12" would create excessive turbulence and would not meet SMACNA standards.
This has been our policy since atleast 2002, can be found in the 2002 Q&A

Other - Question: I have been told that I cannot use the self adhesive labels for gas piping with counter strike CSST, why?

Answer: The manufacturer of counter strike does not allow the use of self adhesive labels, it counter acts the jacket and produces a point of concentration for electrical surges, instead of dispersing them. The manufacture requires the use of special metal tags for use with counter strike.

Other - Question: Is it permissible to route refrigerant or condensate line in a residential elevator shaft? (single family)

Answer: We cannot find any code that prohibits routing refrigerant or condensate lines in a elevator shaft in a single family home. If the manufacturer of the elevator doesn't prohibit it, then we see no reason it would not be allowed.

Other - R303.3 - Question: Can I use a window in lieu of a bath fan in a residential bathroom?

Answer: Yes in a single family, two-family or townhouse; you are allowed to use a minimum of a 3 square foot window, which one-half must be openable.

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R303.3 Bathrooms. Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet, one-half of which must be openable.

Exception: The glazed areas shall not be required where artificial light and an mechanical ventilation system are provided. The minimum ventilation rates shall be 50 cubic feet per minute for intermittent ventilation or 20 cubic feet per minute for continuous ventilation. Ventilation air from the space shall be exhausted directly to the outside.